



224378.ST25
SEQUENCE LISTING

<110> Usha KASID
Deepak KUMAR
Irman AHMAD

<120> GENE SCC-112 AND DIAGNOSTIC AND THERAPEUTIC USES THEREOF

<130> 224378
<140> US/10/679,580
<141> 2003-10-06
<150> PCT/US02/10850
<151> 2002-04-08

<150> 60/281,780
<151> 2001-04-06

<160> 3

<170> PatentIn Ver. 3.2

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Met Ile
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Lys Arg Leu 5 Lys Met Val Val Lys 10 Thr Phe Met Asp Met 15 Asp Gln Asp
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Ser Glu Phe Phe Leu Arg 40 Asn Pro Asn Lys Asp Val Arg Leu Leu Val 35 45 50
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Gln Leu Lys 85 Gly Leu Glu Asp Thr Lys Ser Pro Gln Phe Asn Arg Tyr 90 95

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ttt | tat | tta | tta | gag | aat | tta | gct | tgg | gtt | aaa | tca | tat | aac | atc | tgc | 573 |
| Phe | Tyr | Leu | Leu | Glu | Asn | Leu | Ala | Trp | Val | Lys | Ser | Tyr | Asn | Ile | Cys | |
| | 100 | | | | | 105 | | | | | 110 | | | | | |
| ttt | gaa | ttg | gaa | gat | tgc | aat | gaa | att | ttt | att | cag | ctt | ttt | aga | act | 621 |
| Phe | Glu | Leu | Glu | Asp | Cys | Asn | Glu | Ile | Phe | Ile | Gln | Leu | Phe | Arg | Thr | |
| 115 | | | | | 120 | | | | | 125 | | | | | 130 | |
| ctc | ttc | tca | gtg | atc | aac | aat | agc | cac | aat | aag | aag | gta | caa | atg | cac | 669 |
| Leu | Phe | Ser | Val | Ile | Asn | Asn | Ser | His | Asn | Lys | Lys | Val | Gln | Met | His | |
| | | | | 135 | | | | | 140 | | | | | 145 | | |
| atg | cta | gat | ttg | atg | agt | tct | atc | atc | atg | gaa | ggc | gat | gga | gtt | act | 717 |
| Met | Leu | Asp | Leu | Met | Ser | Ser | Ile | Ile | Met | Glu | Gly | Asp | Gly | Val | Thr | |
| | | | 150 | | | | | 155 | | | | | 160 | | | |
| caa | gaa | tta | ttg | ggc | tcc | att | ctt | att | aac | ctc | att | cct | gca | cat | aag | 765 |
| Gln | Glu | Leu | Leu | Gly | Ser | Ile | Leu | Ile | Asn | Leu | Ile | Pro | Ala | His | Lys | |
| | | 165 | | | | | 170 | | | | | 175 | | | | |
| aac | tta | aat | aaa | cag | tcc | ttt | gac | ctt | gca | aaa | gtg | cta | ttg | aaa | aga | 813 |
| Asn | Leu | Asn | Lys | Gln | Ser | Phe | Asp | Leu | Ala | Lys | Val | Leu | Leu | Lys | Arg | |
| | 180 | | | | | 185 | | | | | 190 | | | | | |
| aca | gtc | cag | act | att | gag | gca | tgc | att | gcc | aat | ttt | ttc | aat | caa | gtc | 861 |
| Thr | Val | Gln | Thr | Ile | Glu | Ala | Cys | Ile | Ala | Asn | Phe | Phe | Asn | Gln | Val | |
| 195 | | | | | 200 | | | | | 205 | | | | | 210 | |
| ctg | gtg | ctg | gga | aga | tca | tca | gta | agt | gat | ttg | tca | gaa | cat | gta | ttt | 909 |
| Leu | Val | Leu | Gly | Arg | Ser | Ser | Val | Ser | Asp | Leu | Ser | Glu | His | Val | Phe | |
| | | | | 215 | | | | | 220 | | | | | 225 | | |
| gat | ctg | att | cag | gaa | ctt | ttt | gct | ata | gat | cct | cat | tta | tta | tta | tcc | 957 |
| Asp | Leu | Ile | Gln | Glu | Leu | Phe | Ala | Ile | Asp | Pro | His | Leu | Leu | Leu | Ser | |
| | | | 230 | | | | | 235 | | | | | 240 | | | |
| gtc | atg | cca | cag | ctt | gaa | ttc | aaa | cta | aag | agc | aat | gat | gga | gaa | gag | 1005 |
| Val | Met | Pro | Gln | Leu | Glu | Phe | Lys | Leu | Lys | Ser | Asn | Asp | Gly | Glu | Glu | |
| | | 245 | | | | | 250 | | | | | 255 | | | | |
| cga | tta | gct | gtt | gtt | cga | ctt | cta | gct | aaa | ttg | ttt | ggc | tcc | aaa | gat | 1053 |
| Arg | Leu | Ala | Val | Val | Arg | Leu | Leu | Ala | Lys | Leu | Phe | Gly | Ser | Lys | Asp | |
| | 260 | | | | | 265 | | | | | 270 | | | | | |
| tct | gat | ttg | gca | aca | cag | aat | cgf | cct | ctt | tgg | caa | tgt | ttt | ctt | gga | 1101 |
| Ser | Asp | Leu | Ala | Thr | Gln | Asn | Arg | Pro | Leu | Trp | Gln | Cys | Phe | Leu | Gly | |
| 275 | | | | | 280 | | | | | 285 | | | | | 290 | |
| cga | ttt | aat | gat | att | cat | gtt | cct | gtg | aga | tta | gaa | agt | gtg | aaa | ttt | 1149 |
| Arg | Phe | Asn | Asp | Ile | His | Val | Pro | Val | Arg | Leu | Glu | Ser | Val | Lys | Phe | |
| | | | | 295 | | | | | 300 | | | | | 305 | | |
| gcc | agt | cat | tgt | tta | atg | aat | cac | cca | gat | tta | gcg | aag | gat | ctc | aca | 1197 |
| Ala | Ser | His | Cys | Leu | Met | Asn | His | Pro | Asp | Leu | Ala | Lys | Asp | Leu | Thr | |
| | | | 310 | | | | | 315 | | | | | 320 | | | |
| gaa | tat | tta | aag | gtt | aga | tca | cat | gat | cca | gaa | gaa | gct | att | cgf | cat | 1245 |
| Glu | Tyr | Leu | Lys | Val | Arg | Ser | His | Asp | Pro | Glu | Glu | Ala | Ile | Arg | His | |
| | | 325 | | | | | 330 | | | | | 335 | | | | |
| gat | gtc | att | gtt | act | ata | ata | aca | gct | gcc | aag | agg | gac | ctg | gcc | tta | 1293 |
| Asp | Val | Ile | Val | Thr | Ile | Ile | Thr | Ala | Ala | Lys | Arg | Asp | Leu | Ala | Leu | |
| | 340 | | | | | 345 | | | | | 350 | | | | | |
| gta | aat | gat | cag | ctg | ctt | ggc | ttt | gta | agg | gaa | aga | aca | ctg | gat | aaa | 1341 |
| Val | Asn | Asp | Gln | Leu | Leu | Gly | Phe | Val | Arg | Glu | Arg | Thr | Leu | Asp | Lys | |
| 355 | | | | | 360 | | | | | 365 | | | | | 370 | |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| cgg | tgg | cga | gta | aga | aaa | gaa | gct | atg | atg | ggt | ctg | gct | cag | ctt | tat | 1389 |
| Arg | Trp | Arg | Val | Arg | Lys | Glu | Ala | Met | Met | Gly | Leu | Ala | Gln | Leu | Tyr | |
| | | | | 375 | | | | | 380 | | | | | 385 | | |
| aag | aaa | tac | tgt | ctt | cat | ggt | gaa | gca | gga | aag | gaa | gct | gca | gag | aaa | 1437 |
| Lys | Lys | Tyr | Cys | Leu | His | Gly | Glu | Ala | Gly | Lys | Glu | Ala | Ala | Glu | Lys | |
| | | | 390 | | | | | 395 | | | | | 400 | | | |
| gtc | agc | tgg | ata | aag | gac | aaa | ctt | ctg | cat | att | tat | tat | cag | aac | agc | 1485 |
| Val | Ser | Trp | Ile | Lys | Asp | Lys | Leu | Leu | His | Ile | Tyr | Tyr | Gln | Asn | Ser | |
| | | 405 | | | | | 410 | | | | | 415 | | | | |
| att | gac | gac | aaa | ctg | ttg | gta | gag | aaa | atc | ttt | gct | cag | tat | ctt | gtc | 1533 |
| Ile | Asp | Asp | Lys | Leu | Leu | Val | Glu | Lys | Ile | Phe | Ala | Gln | Tyr | Leu | Val | |
| | 420 | | | | | 425 | | | | | 430 | | | | | |
| ccc | cac | aac | ctg | gaa | aca | gaa | gag | aga | atg | aaa | tgc | tta | tat | tac | tta | 1581 |
| Pro | His | Asn | Leu | Glu | Thr | Glu | Glu | Arg | Met | Lys | Cys | Leu | Tyr | Tyr | Leu | |
| 435 | | | | | 440 | | | | | 445 | | | | | 450 | |
| tat | gct | agt | ttg | gat | cca | aat | gct | gta | aaa | gct | ctc | aac | gaa | atg | tgg | 1629 |
| Tyr | Ala | Ser | Leu | Asp | Pro | Asn | Ala | Val | Lys | Ala | Leu | Asn | Glu | Met | Trp | |
| | | | | 455 | | | | | 460 | | | | | 465 | | |
| aag | tgt | cag | aac | atg | ctt | cgg | agc | cat | gta | cgc | gaa | cta | ttg | gat | ttg | 1677 |
| Lys | Cys | Gln | Asn | Met | Leu | Arg | Ser | His | Val | Arg | Glu | Leu | Leu | Asp | Leu | |
| | | | 470 | | | | | 475 | | | | | 480 | | | |
| cac | aag | cag | cct | aca | tca | gag | gct | aac | tgt | tct | gcc | atg | ttt | gga | aaa | 1725 |
| His | Lys | Gln | Pro | Thr | Ser | Glu | Ala | Asn | Cys | Ser | Ala | Met | Phe | Gly | Lys | |
| | | 485 | | | | | 490 | | | | | 495 | | | | |
| ctg | atg | acc | ata | gca | aag | aat | ttg | cct | gac | ccc | ggg | aaa | gca | caa | gat | 1773 |
| Leu | Met | Thr | Ile | Ala | Lys | Asn | Leu | Pro | Asp | Pro | Gly | Lys | Ala | Gln | Asp | |
| | 500 | | | | | 505 | | | | | 510 | | | | | |
| ttt | gtg | aag | aaa | ttt | aac | cag | ggt | ctc | ggc | gat | gat | gag | aaa | ctt | cgg | 1821 |
| Phe | Val | Lys | Lys | Phe | Asn | Gln | Val | Leu | Gly | Asp | Asp | Glu | Lys | Leu | Arg | |
| 515 | | | | | 520 | | | | 525 | | | | | | 530 | |
| tct | cag | ttg | gag | tta | tta | att | agc | cca | acc | tgt | tct | tgc | aaa | caa | gca | 1869 |
| Ser | Gln | Leu | Glu | Leu | Leu | Ile | Ser | Pro | Thr | Cys | Ser | Cys | Lys | Gln | Ala | |
| | | | | 535 | | | | | 540 | | | | | 545 | | |
| gat | att | tgt | gtg | aga | gaa | ata | gcc | cgg | aaa | ctt | gca | aat | cct | aag | caa | 1917 |
| Asp | Ile | Cys | Val | Arg | Glu | Ile | Ala | Arg | Lys | Leu | Ala | Asn | Pro | Lys | Gln | |
| | | | 550 | | | | 555 | | | | | | 560 | | | |
| cca | aca | aat | cct | ttt | cta | gag | atg | gtc | aaa | ttt | ctg | ttg | gaa | aga | atc | 1965 |
| Pro | Thr | Asn | Pro | Phe | Leu | Glu | Met | Val | Lys | Phe | Leu | Leu | Glu | Arg | Ile | |
| | | 565 | | | | | 570 | | | | | 575 | | | | |
| gca | cct | gtg | cac | att | gat | tca | gaa | gcc | ata | agt | gca | cta | gtg | aaa | ttg | 2013 |
| Ala | Pro | Val | His | Ile | Asp | Ser | Glu | Ala | Ile | Ser | Ala | Leu | Val | Lys | Leu | |
| | | 580 | | | | 585 | | | | | 590 | | | | | |
| atg | aat | aag | tca | ata | gag | ggg | aca | gca | gat | gat | gaa | gag | gag | ggt | gta | 2061 |
| Met | Asn | Lys | Ser | Ile | Glu | Gly | Thr | Ala | Asp | Asp | Glu | Glu | Glu | Gly | Val | |
| 595 | | | | | 600 | | | | | 605 | | | | | 610 | |
| agt | cca | gat | aca | gct | atc | cgt | tca | gga | ctt | gaa | ctt | ctt | aag | gtt | ctg | 2109 |
| Ser | Pro | Asp | Thr | Ala | Ile | Arg | Ser | Gly | Leu | Glu | Leu | Leu | Lys | Val | Leu | |
| | | | | 615 | | | | | 620 | | | | | 625 | | |
| tct | ttt | aca | cat | cct | acc | tcg | ttc | cac | tct | gca | gag | aca | tat | gag | tcc | 2157 |
| Ser | Phe | Thr | His | Pro | Thr | Ser | Phe | His | Ser | Ala | Glu | Thr | Tyr | Glu | Ser | |

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| 630 | | | | | | 635 | | | | | | 640 | | | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|--|--|
| ttg Leu | tta Leu | cag Gln 645 | tgc Cys | cta Leu | aga Arg | atg Met | gag Glu 650 | gat Asp | gac Asp | aag Lys | gta Val | gca Ala 655 | gaa Glu | gct Ala | gct Ala | 2205 | | |
| att Ile | caa Gln 660 | att Ile | ttt Phe | aga Arg | aat Asn | aca Thr 665 | ggt Gly | cac His | aaa Lys | ata Ile | gaa Glu 670 | aca Thr | gac Asp | ctt Leu | ccc Pro | 2253 | | |
| cag Gln 675 | ata Ile | cga Arg | tcg Ser | acc Thr | tta Leu 680 | att Ile | ccc Pro | att Ile | tta Leu | cat His 685 | caa Gln | aaa Lys | gca Ala | aag Lys | agg Arg 690 | 2301 | | |
| ggt Gly | act Thr | cca Pro | cac His | caa Gln 695 | gca Ala | aaa Lys | cag Gln | gct Ala | gtg Val 700 | cac His | tgt Cys | ata Ile | cac His | gcc Ala 705 | ata Ile | 2349 | | |
| ttc Phe | aca Thr | aat Asn | aaa Lys 710 | gaa Glu | gtc Val | cag Gln | ctt Leu | gca Ala 715 | cag Gln | att Ile | ttt Phe | gag Glu | cca Pro 720 | ctc Leu | agt Ser | 2397 | | |
| agg Arg | agt Ser | ctg Leu 725 | aat Asn | gct Ala | gat Asp | gtg Val | cca Pro 730 | gaa Glu | caa Gln | ctt Leu | ata Ile | act Thr 735 | cca Pro | tta Leu | gtt Val | 2445 | | |
| tca Ser | ttg Leu 740 | ggc Gly | cac His | att Ile | tct Ser | atg Met 745 | tta Leu | gca Ala | cca Pro | gat Asp | cag Gln 750 | ttt Phe | gct Ala | tcc Ser | cca Pro | 2493 | | |
| atg Met 755 | aaa Lys | tct Ser | gta Val | gta Val | gca Ala 760 | aat Asn | ttt Phe | att Ile | gtg Val | aaa Lys 765 | gat Asp | ctg Leu | cta Leu | atg Met | aat Asn 770 | 2541 | | |
| gac Asp | agg Arg | tca Ser | aca Thr | ggt Gly 775 | gaa Glu | aag Lys | aat Asn | gga Gly | aaa Lys 780 | ctg Leu | tgg Trp | tct Ser | cca Pro | gat Asp 785 | gaa Glu | 2589 | | |
| gag Glu | gtt Val | tcc Ser | cct Pro 790 | gaa Glu | gta Val | cta Leu | gca Ala | aag Lys 795 | gta Val | cag Gln | gca Ala | att Ile | aaa Lys 800 | ctt Leu | ctg Leu | 2637 | | |
| gta Val | agg Arg | tgg Trp 805 | ctg Leu | ttg Leu | ggt Gly | atg Met | aaa Lys 810 | aac Asn | aac Asn | cag Gln | tct Ser | aaa Lys 815 | tct Ser | gcc Ala | aat Asn | 2685 | | |
| tca Ser | acc Thr 820 | ctt Leu | cgg Arg | tta Leu | tta Leu | tca Ser 825 | gcg Ala | atg Met | ttg Leu | gtt Val | agt Ser 830 | gag Glu | ggt Gly | gac Asp | ctg Leu | 2733 | | |
| aca Thr 835 | gag Glu | caa Gln | aag Lys | agg Arg | atc Ile 840 | agt Ser | aaa Lys | tct Ser | gat Asp | atg Met 845 | tct Ser | cgc Arg | ttg Leu | cga Arg | tta Leu 850 | 2781 | | |
| gct Ala | gct Ala | ggt Gly | agt Ser | gcc Ala 855 | ata Ile | atg Met | aag Lys | ctt Leu | gct Ala 860 | cag Gln | gaa Glu | cct Pro | tgt Cys | tac Tyr 865 | cat His | 2829 | | |
| gaa Glu | att Ile | att Ile | acc Thr 870 | cca Pro | gaa Glu | cag Gln | ttt Phe | cag Gln 875 | ctc Leu | tgt Cys | gca Ala | ctt Leu | gtt Val 880 | att Ile | aat Asn | 2877 | | |
| gat Asp | gag Glu | tgt Cys 885 | tac Tyr | caa Gln | gta Val | agg Arg | cag Gln 890 | ata Ile | ttt Phe | gct Ala | cag Gln | aag Lys 895 | ctg Leu | cat His | aag Lys | 2925 | | |
| gca | ctt | gtg | aag | tta | ctg | ctc | cca | ttg | gag | tat | atg | gcg | atc | ttt | qcc | 2973 | | |

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|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|--|
| Ala | Leu | Val | Lys | Leu | Leu | Leu | Pro | Leu | Glu | Tyr | Met | Ala | Ile | Phe | Ala | | |
| 900 | | | | | | 905 | | | | | 910 | | | | | | |
| ttg | tgt | gcc | aaa | gat | cct | gtg | aag | gag | aga | aga | gca | cac | gca | cga | caa | 3021 | |
| Leu | Cys | Ala | Lys | Asp | Pro | Val | Lys | Glu | Arg | Arg | Ala | His | Ala | Arg | Gln | 930 | |
| 915 | | | | | 920 | | | | | 925 | | | | | | | |
| tgt | tta | ctg | aaa | aat | atc | agt | ata | cgc | agg | gaa | tac | att | aag | cag | aat | 3069 | |
| Cys | Leu | Leu | Lys | Asn | Ile | Ser | Ile | Arg | Arg | Glu | Tyr | Ile | Lys | Gln | Asn | 945 | |
| | | | | 935 | | | | | 940 | | | | | | | | |
| cct | atg | gct | act | gag | aaa | tta | tta | tca | ctg | ttg | cct | gaa | tat | gta | gtt | 3117 | |
| Pro | Met | Ala | Thr | Glu | Lys | Leu | Leu | Ser | Leu | Leu | Pro | Glu | Tyr | Val | Val | | |
| | | | 950 | | | | | 955 | | | | | 960 | | | | |
| cca | tac | atg | att | cac | ctg | cta | gcc | cat | gat | cca | gat | ttt | aca | aga | tca | 3165 | |
| Pro | Tyr | Met | Ile | His | Leu | Leu | Ala | His | Asp | Pro | Asp | Phe | Thr | Arg | Ser | | |
| | | 965 | | | | | 970 | | | | | 975 | | | | | |
| caa | gat | gtt | gat | cag | ctt | cgt | gat | atc | aaa | gag | tgc | cta | tggt | ttc | atg | 3213 | |
| Gln | Asp | Val | Asp | Gln | Leu | Arg | Asp | Ile | Lys | Glu | Cys | Leu | Trp | Phe | Met | | |
| | 980 | | | | | 985 | | | | | 990 | | | | | | |
| ctt | gaa | gtt | tta | atg | aca | aag | aat | gaa | aac | aat | agc | cat | gcc | ttt | atg | 3261 | |
| Leu | Glu | Val | Leu | Met | Thr | Lys | Asn | Glu | Asn | Asn | Ser | His | Ala | Phe | Met | 1010 | |
| 995 | | | | | 1000 | | | | | 1005 | | | | | | | |
| aag | aag | atg | gca | gag | aac | atc | aag | tta | acc | aga | gat | gcc | cag | tct | cca | 3309 | |
| Lys | Lys | Met | Ala | Glu | Asn | Ile | Lys | Leu | Thr | Arg | Asp | Ala | Gln | Ser | Pro | | |
| | | | 1015 | | | | | | 1020 | | | | 1025 | | | | |
| gat | gaa | tcc | aag | aca | aat | gaa | aaa | ctg | tat | aca | gta | tgt | gat | gtg | gct | 3357 | |
| Asp | Glu | Ser | Lys | Thr | Asn | Glu | Lys | Leu | Tyr | Thr | Val | Cys | Asp | Val | Ala | | |
| | | | 1030 | | | | 1035 | | | | | 1040 | | | | | |
| ctc | tgt | gtt | ata | aat | agt | aaa | agt | gct | ttg | tgc | aat | gca | gat | tca | cca | 3405 | |
| Leu | Cys | Val | Ile | Asn | Ser | Lys | Ser | Ala | Leu | Cys | Asn | Ala | Asp | Ser | Pro | | |
| | | 1045 | | | | 1050 | | | | | 1055 | | | | | | |
| aag | gac | cca | gtc | ctc | cca | atg | aaa | ttt | ttt | aca | caa | cct | gaa | aag | gac | 3453 | |
| Lys | Asp | Pro | Val | Leu | Pro | Met | Lys | Phe | Phe | Thr | Gln | Pro | Glu | Lys | Asp | | |
| | 1060 | | | | 1065 | | | | | 1070 | | | | | | | |
| ttc | tgt | aac | gat | aag | agt | tat | att | tca | gaa | gag | aca | aga | gta | ctt | ctg | 3501 | |
| Phe | Cys | Asn | Asp | Lys | Ser | Tyr | Ile | Ser | Glu | Glu | Thr | Arg | Val | Leu | Leu | 1090 | |
| 1075 | | | | 1080 | | | | | 1085 | | | | | | | | |
| tta | aca | gga | aag | cca | aag | cct | gct | gga | gta | cta | ggt | gca | gta | aat | aag | 3549 | |
| Leu | Thr | Gly | Lys | Pro | Lys | Pro | Ala | Gly | Val | Leu | Gly | Ala | Val | Asn | Lys | | |
| | | | 1095 | | | | | 1100 | | | | | 1105 | | | | |
| cct | tta | tca | gca | acg | gga | agg | aaa | ccc | tat | gtt | aga | agc | act | ggc | act | 3597 | |
| Pro | Leu | Ser | Ala | Thr | Gly | Arg | Lys | Pro | Tyr | Val | Arg | Ser | Thr | Gly | Thr | | |
| | | | 1110 | | | | 1115 | | | | | 1120 | | | | | |
| gag | act | gga | agc | aat | att | aat | gta | aat | tca | gag | ctg | aac | cct | tca | acc | 3645 | |
| Glu | Thr | Gly | Ser | Asn | Ile | Asn | Val | Asn | Ser | Glu | Leu | Asn | Pro | Ser | Thr | | |
| | | 1125 | | | | 1130 | | | | | 1135 | | | | | | |
| gga | aat | cga | tca | agg | gaa | cag | agt | tca | gag | gca | gca | gaa | act | gga | gtt | 3693 | |
| Gly | Asn | Arg | Ser | Arg | Glu | Gln | Ser | Ser | Glu | Ala | Ala | Glu | Thr | Gly | Val | | |
| | 1140 | | | | 1145 | | | | | 1150 | | | | | | | |
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 20 25 30

Leu Ala Ser Glu Phe Phe Leu Arg Asn Pro Asn Lys Asp Val Arg Leu
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| 35 | | | | | 40 | | | | | 45 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Ala | Pro | Tyr | Thr | Ser | His | Asp | Lys | Leu | Lys | Asp | Ile | Phe | Leu | Phe | Ile |
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| Thr | Arg | Gln | Leu | Lys | Gly | Leu | Glu | Asp | Thr | Lys | Ser | Pro | Gln | Phe | Asn |
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| Met | His | Met | Leu | Asp | Leu | Met | Ser | Ser | Ile | Ile | Met | Glu | Gly | Asp | Gly |
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| Val | Thr | Gln | Glu | Leu | Leu | Gly | Ser | Ile | Leu | Ile | Asn | Leu | Ile | Pro | Ala |
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| His | Lys | Asn | Leu | Asn | Lys | Gln | Ser | Phe | Asp | Leu | Ala | Lys | Val | Leu | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Arg | Thr | Val | Gln | Thr | Ile | Glu | Ala | Cys | Ile | Ala | Asn | Phe | Phe | Asn |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gln | Val | Leu | Val | Leu | Gly | Arg | Ser | Ser | Val | Ser | Asp | Leu | Ser | Glu | His |
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| Val | Phe | Asp | Leu | Ile | Gln | Glu | Leu | Phe | Ala | Ile | Asp | Pro | His | Leu | Leu |
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| Leu | Ser | Val | Met | Pro | Gln | Leu | Glu | Phe | Lys | Leu | Lys | Ser | Asn | Asp | Gly |
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| Glu | Glu | Arg | Leu | Ala | Val | Val | Arg | Leu | Leu | Ala | Lys | Leu | Phe | Gly | Ser |
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| Lys | Phe | Ala | Ser | His | Cys | Leu | Met | Asn | His | Pro | Asp | Leu | Ala | Lys | Asp |
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| Leu | Thr | Glu | Tyr | Leu | Lys | Val | Arg | Ser | His | Asp | Pro | Glu | Glu | Ala | Ile |
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| Ala | Leu | Val | Asn | Asp | Gln | Leu | Leu | Gly | Phe | Val | Arg | Glu | Arg | Thr | Leu |
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 Asn Ser Ile Asp Asp Lys Leu Leu Val Glu Lys Ile Phe Ala Gln Tyr
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 Gly Lys Leu Met Thr Ile Ala Lys Asn Leu Pro Asp Pro Gly Lys Ala
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